FIG.1

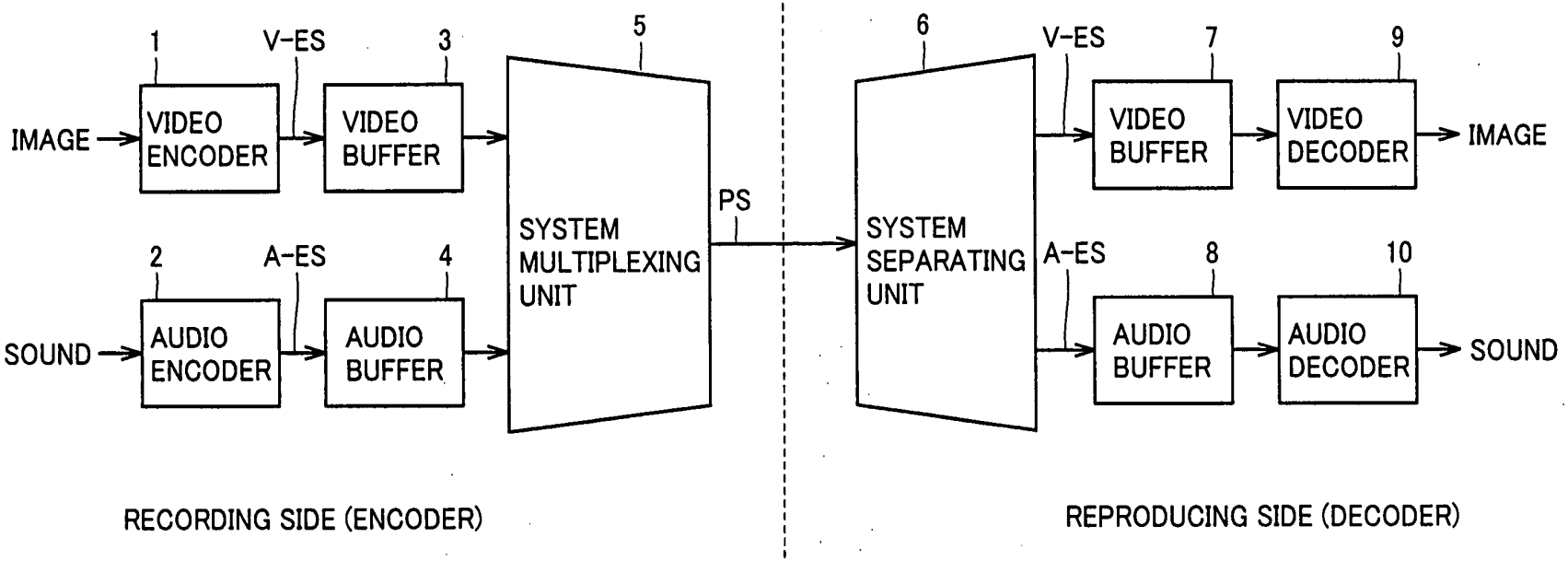
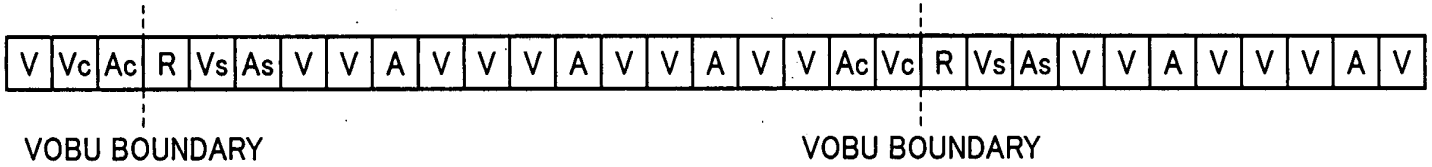

1
V-ES
3
5
6
V-ES
7
9
IMAGE
VIDEO ENCODER
VIDEO BUFFER
SYSTEM MULTIPLEXING UNIT
PS
SYSTEM SEPARATING UNIT
VIDEO BUFFER
VIDEO DECODER
IMAGE
2
A-ES
4
A-ES
8
10
SOUND
AUDIO ENCODER
AUDIO BUFFER
AUDIO BUFFER
AUDIO DECODER
SOUND
RECORDING SIDE (ENCODER)
REPRODUCING SIDE (DECODER)

FIG.2



Vs: VIDEO VOBU HEAD PCK
Vc: VIDEO VOBU COMPLETE PCK
V : ORDINARY VIDEO PCK OTHER THAN ABOVE
As: AUDIO VOBU HEAD PCK
Ac: AUDIO VOBU COMPLETE PCK
A : ORDINARY AUDIO PCK OTHER THAN ABOVE
R : RDI_PCK (VOBU HEAD)

FIG.3A

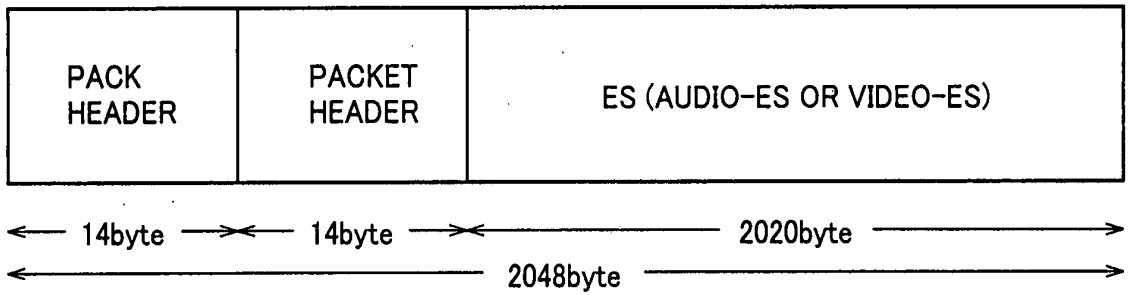


FIG.3B

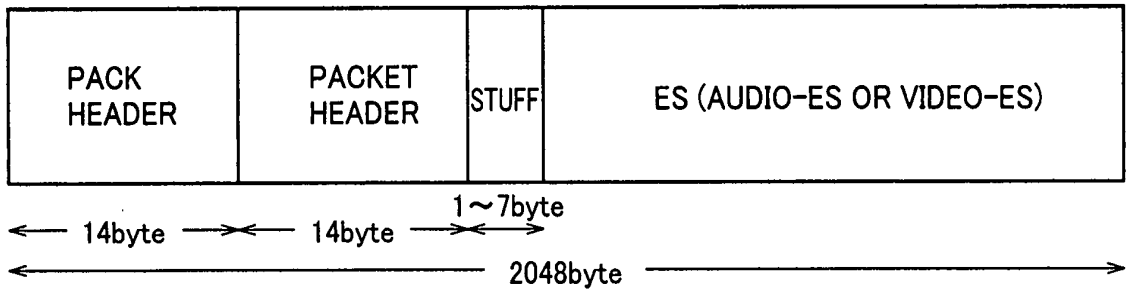


FIG.3C

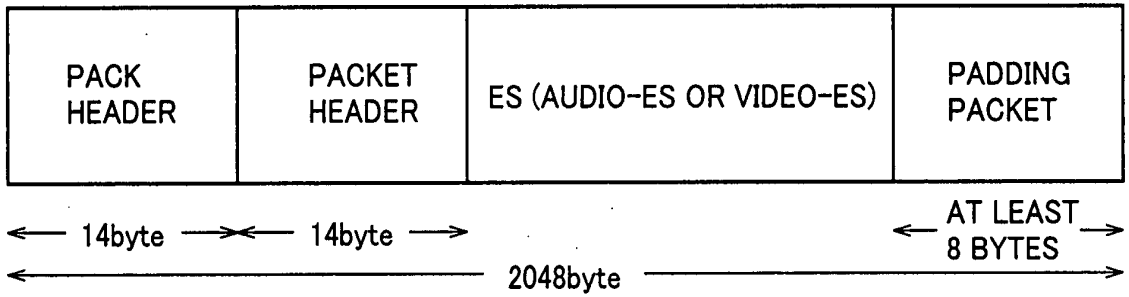


FIG.4

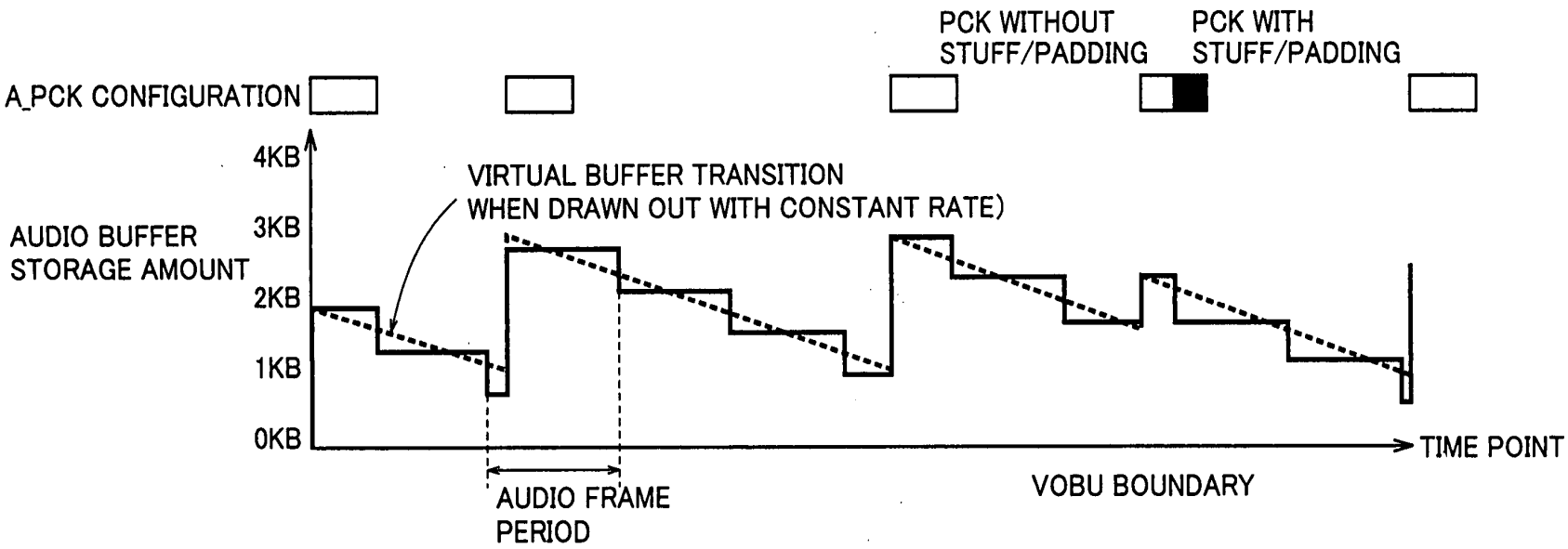

PCK WITHOUT STUFF/PADDING
PCK WITH STUFF/PADDING
A_PCK CONFIGURATION
4KB
3KB
2KB
1KB
0KB
AUDIO BUFFER STORAGE AMOUNT
VIRTUAL BUFFER TRANSITION WHEN DRAWN OUT WITH CONSTANT RATE)
TIME POINT
AUDIO FRAME PERIOD
VOBU BOUNDARY

FIG.5

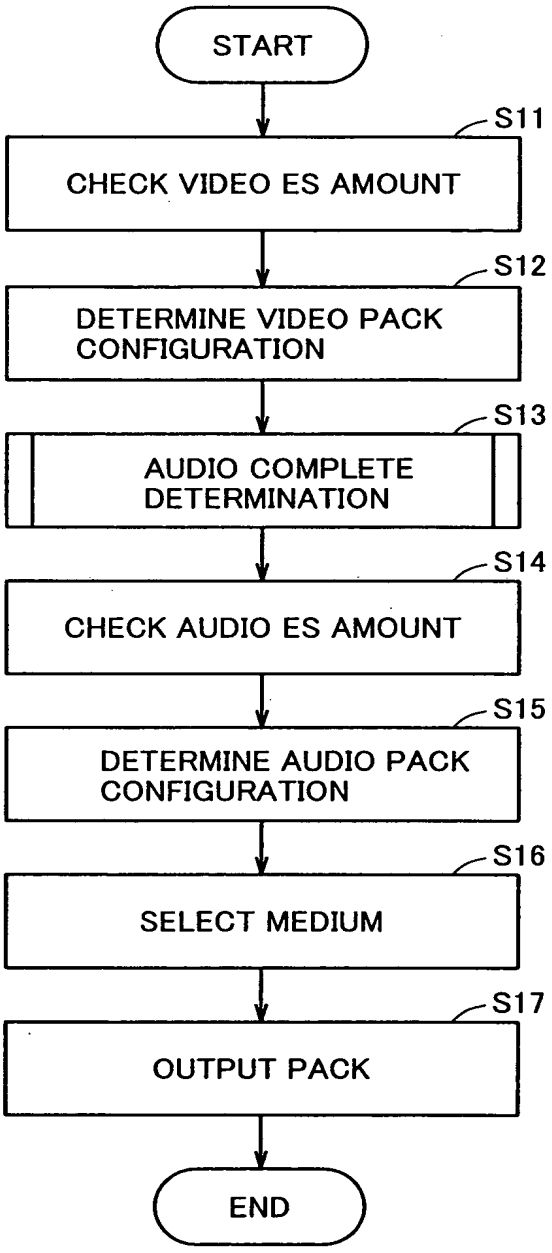

START
S11
CHECK VIDEO ES AMOUNT
S12
DETERMINE VIDEO PACK CONFIGURATION
S13
AUDIO COMPLETE DETERMINATION
S14
CHECK AUDIO ES AMOUNT
S15
DETERMINE AUDIO PACK CONFIGURATION
S16
SELECT MEDIUM
S17
OUTPUT PACK
END

FIG.6

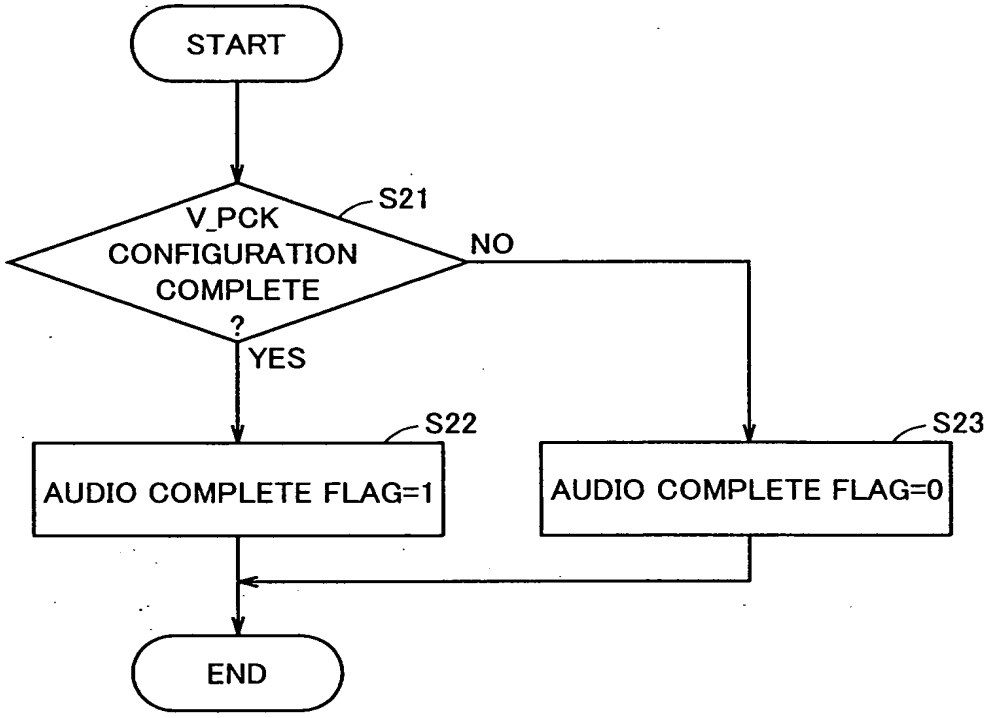

START
V_PCK CONFIGURATION COMPLETE ?
S21
NO
YES
S22
AUDIO COMPLETE FLAG=1
S23
AUDIO COMPLETE FLAG=0
END

FIG.7

IMAGE RECORDING MODE	SOUND RECORDING MODE	bitrate (kbps)	FRAME LENGTH (byte)	PCK PERIOD
—	1	64	256	22725
—	2	80	320	18180
—	3	96	384	15150
—	4	112	448	12986
—	5	128	512	11363
—	6	160	640	9090
LONG TIME	7	192	768	7575
—	8	224	896	6493
STANDARD	9	256	1024	5681
—	10	320	1280	4545
HIGH QUALITY	11	384	1536	3788
—	12	448	1792	3246

FIG.8

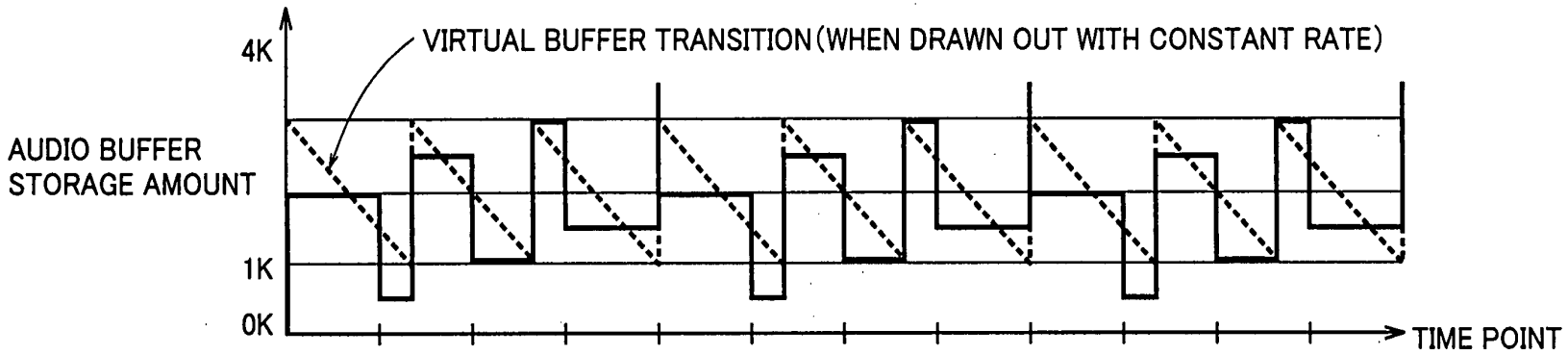

VIRTUAL BUFFER TRANSITION (WHEN DRAWN OUT WITH CONSTANT RATE)
AUDIO BUFFER STORAGE AMOUNT
4K
1K
0K
TIME POINT

FIG.9A

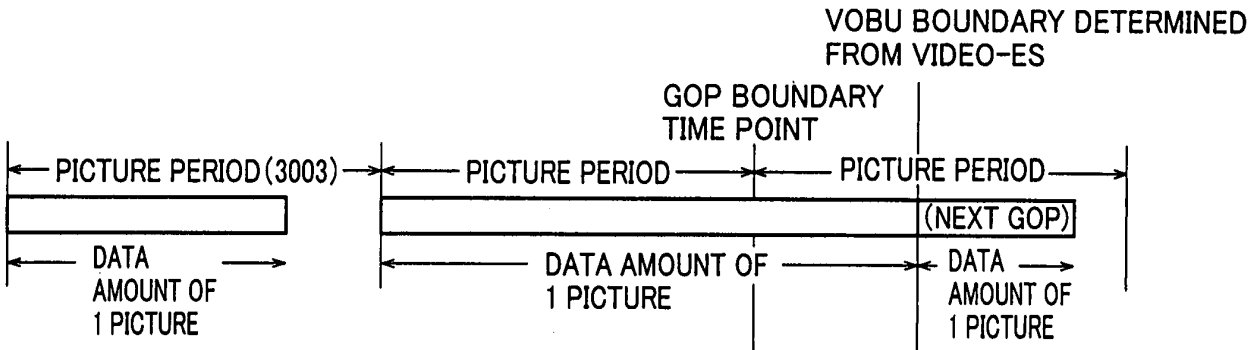


FIG.9B

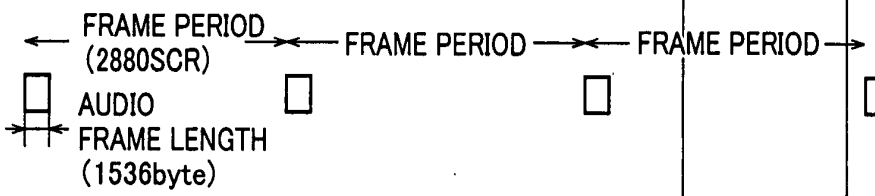


FIG.9C

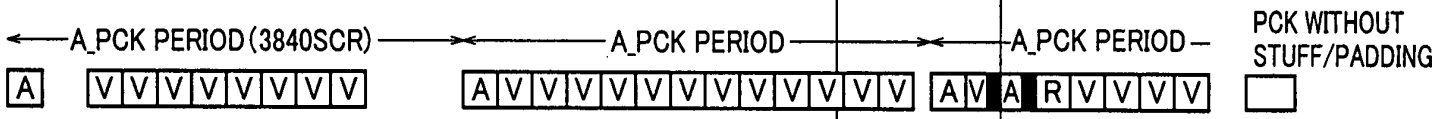

PS
A_PCK PERIOD (3840SCR)
A_PCK PERIOD
A_PCK PERIOD
A V V V V V V V
A V V V V V V V V V V V V
A V A R V V V V
PCK WITHOUT STUFF/PADDING
PCK WITH STUFF/PADDING

FIG.9D

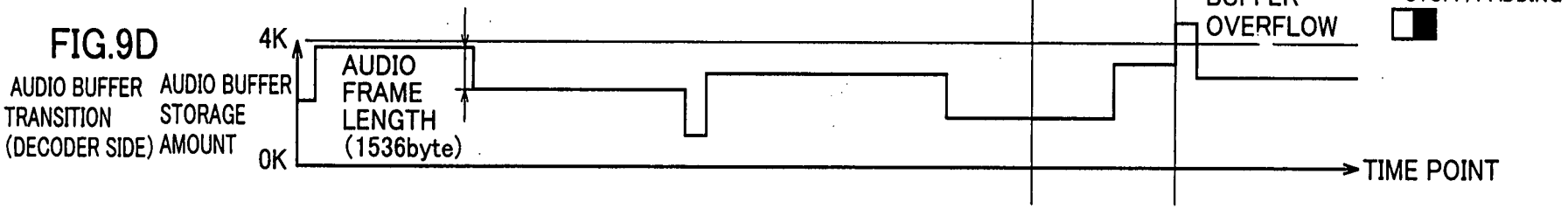


FIG.10

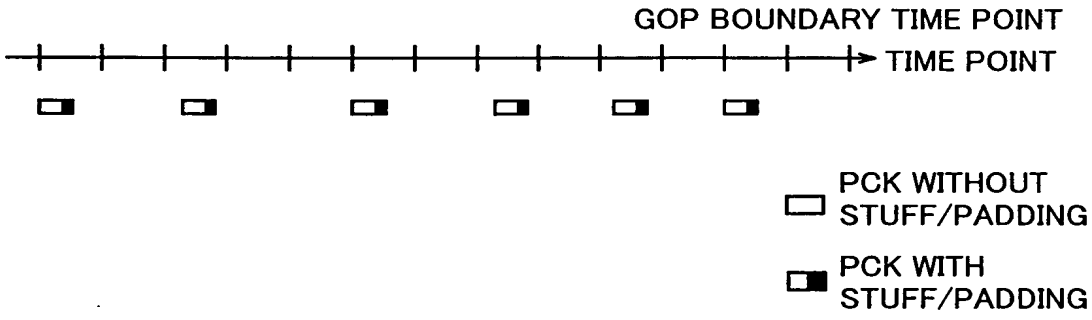

GOP BOUNDARY TIME POINT
TIME POINT
PCK WITHOUT STUFF/PADDING
PCK WITH STUFF/PADDING

FIG.11

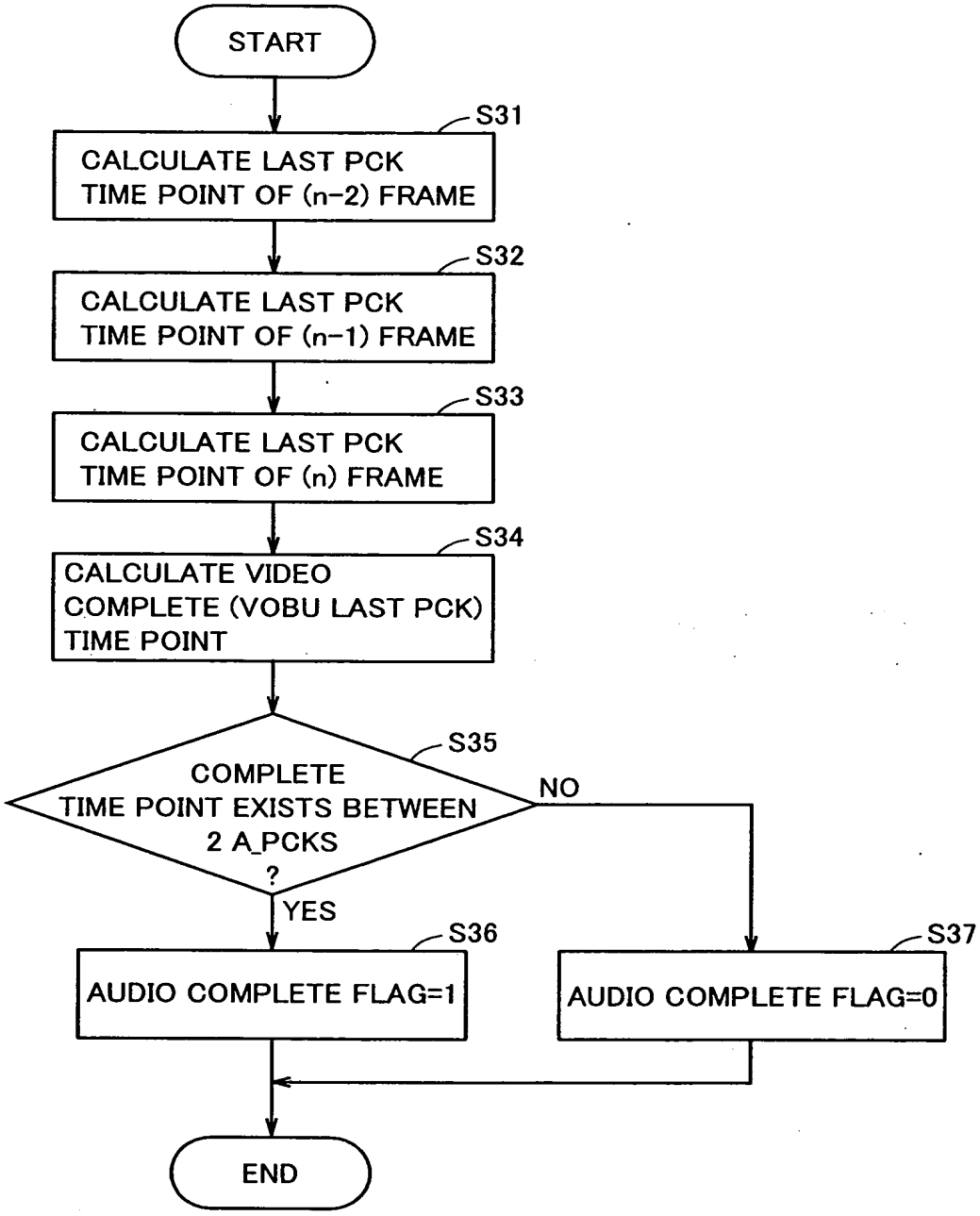

START
S31
CALCULATE LAST PCK TIME POINT OF (n-2) FRAME
S32
CALCULATE LAST PCK TIME POINT OF (n-1) FRAME
S33
CALCULATE LAST PCK TIME POINT OF (n) FRAME
S34
CALCULATE VIDEO COMPLETE (VOBU LAST PCK) TIME POINT
S35
COMPLETE TIME POINT EXISTS BETWEEN 2 A_PCKS ?
NO
YES
S36
AUDIO COMPLETE FLAG=1
S37
AUDIO COMPLETE FLAG=0
END

FIG.12A

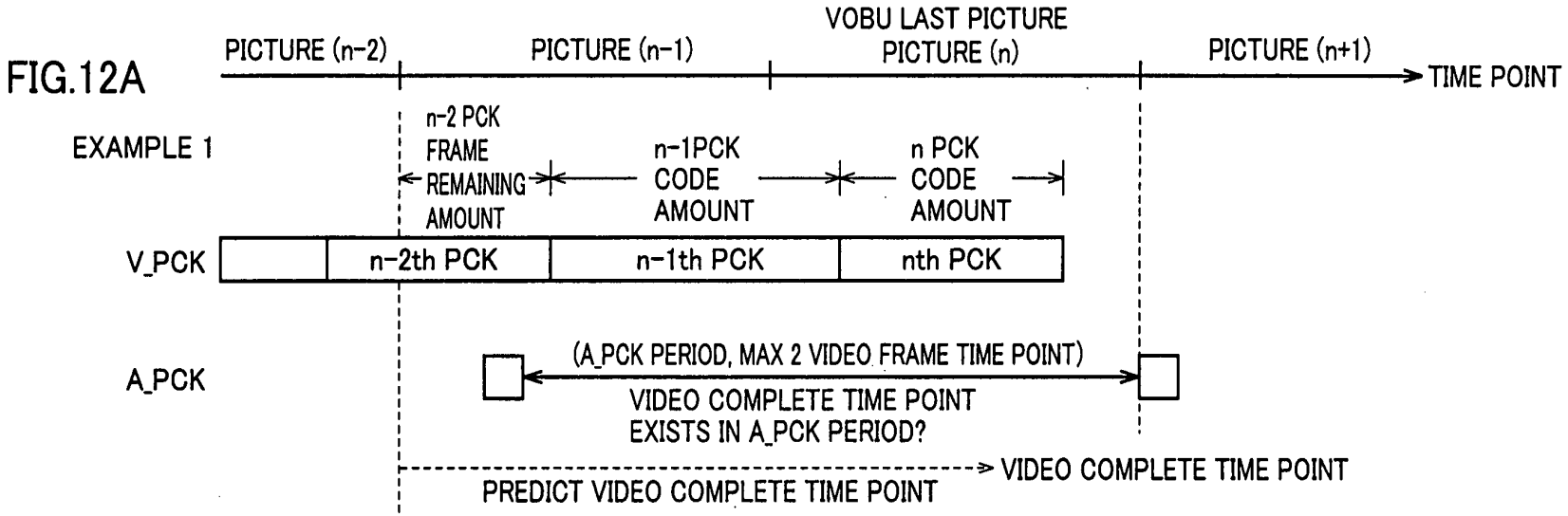
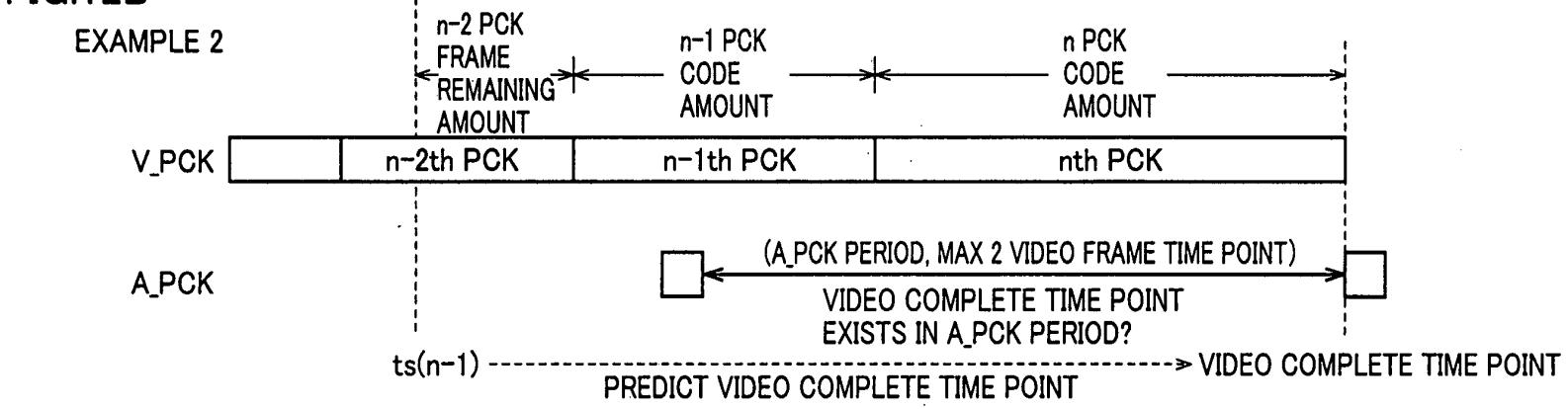


FIG.12B



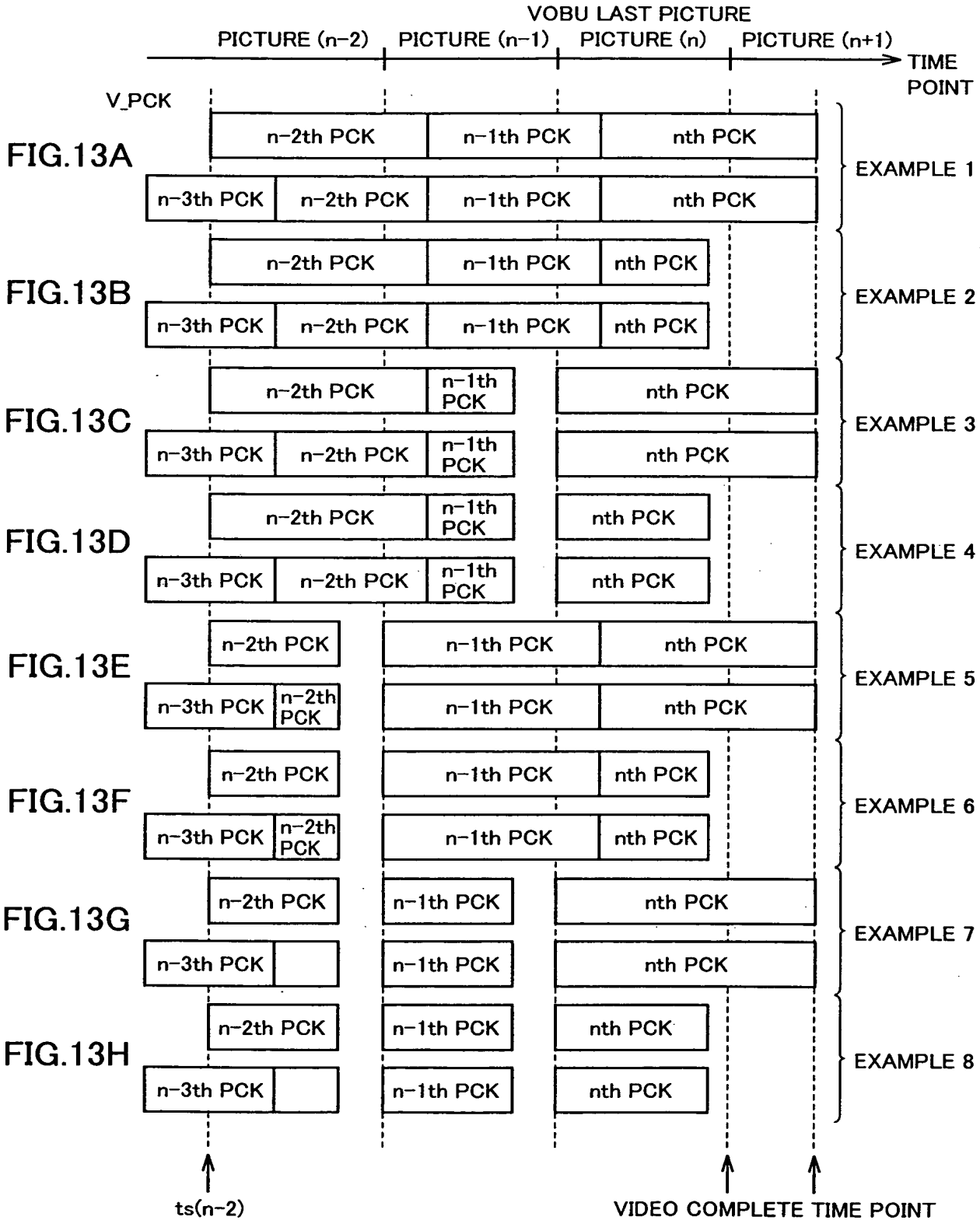

VOBU LAST PICTURE
PICTURE (n-2)
PICTURE (n-1)
PICTURE (n)
PICTURE (n+1)
TIME POINT
V_PCK
FIG.13A
n-2th PCK
n-1th PCK
nth PCK
EXAMPLE 1
n-3th PCK
n-2th PCK
n-1th PCK
nth PCK
FIG.13B
EXAMPLE 2
FIG.13C
EXAMPLE 3
FIG.13D
EXAMPLE 4
FIG.13E
EXAMPLE 5
n-3th PCK
n-2th PCK
FIG.13F
EXAMPLE 6
FIG.13G
EXAMPLE 7
FIG.13H
EXAMPLE 8
ts(n-2)
VIDEO COMPLETE TIME POINT

FIG.14

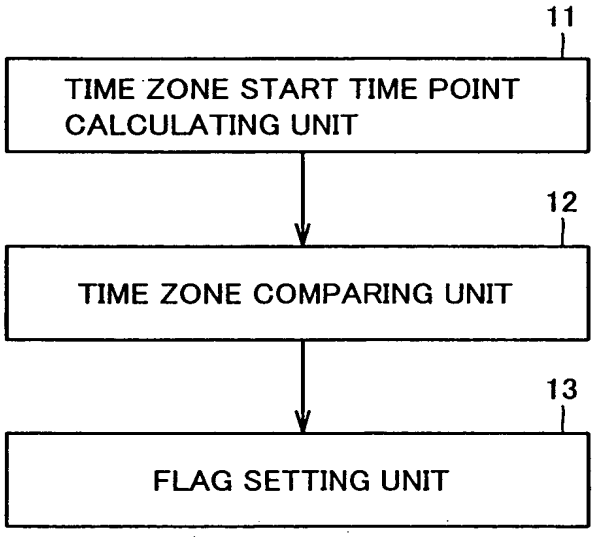

11
TIME ZONE START TIME POINT CALCULATING UNIT
12
TIME ZONE COMPARING UNIT
13
FLAG SETTING UNIT

FIG.15

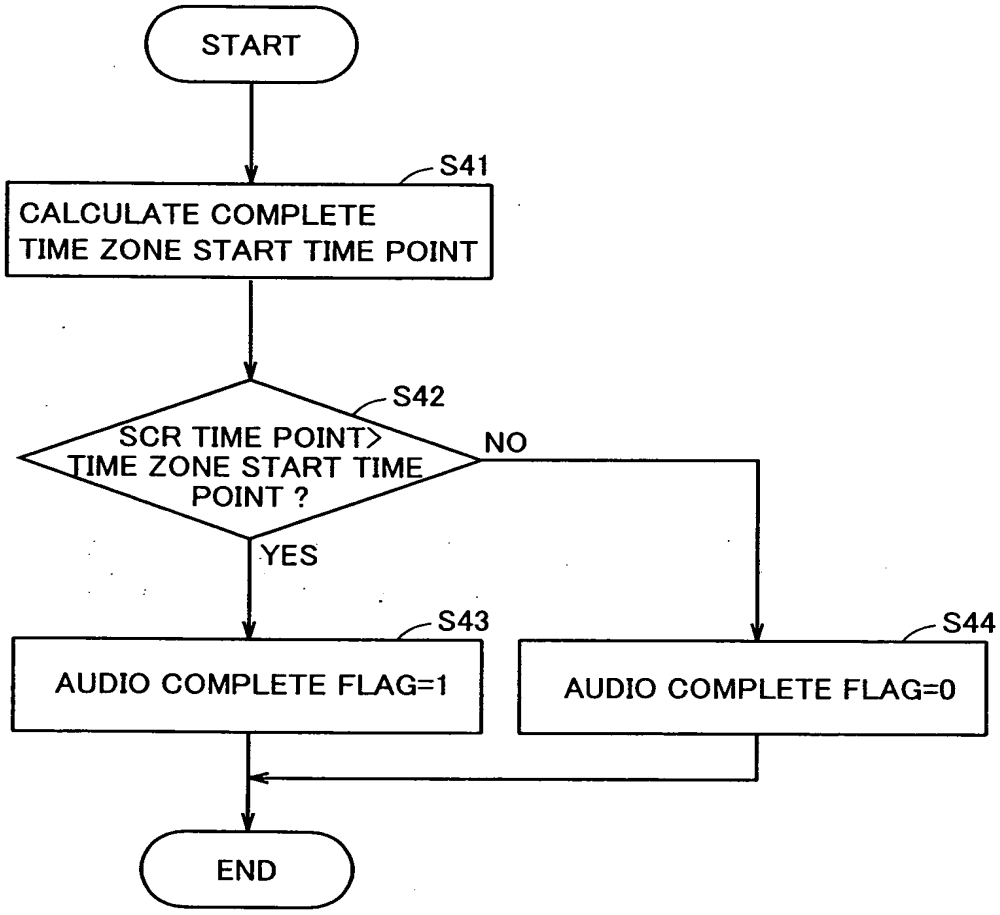

START
S41
CALCULATE COMPLETE TIME ZONE START TIME POINT
S42
SCR TIME POINT> TIME ZONE START TIME POINT ?
NO
YES
S43
AUDIO COMPLETE FLAG=1
S44
AUDIO COMPLETE FLAG=0
END

FIG.16A

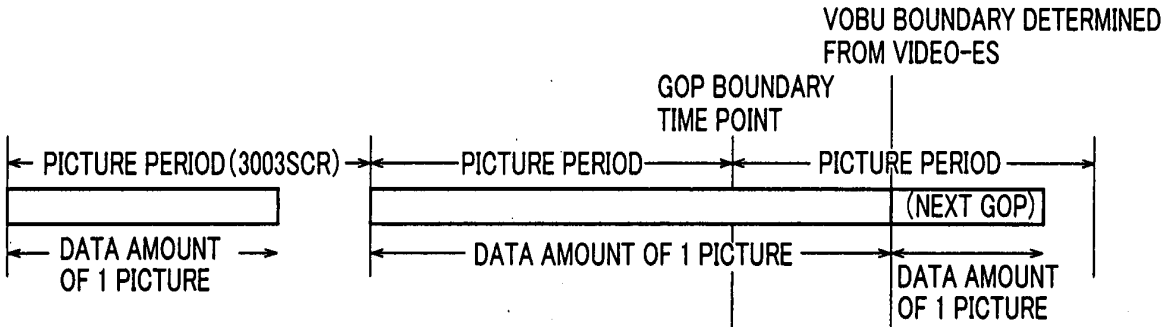


FIG.16B

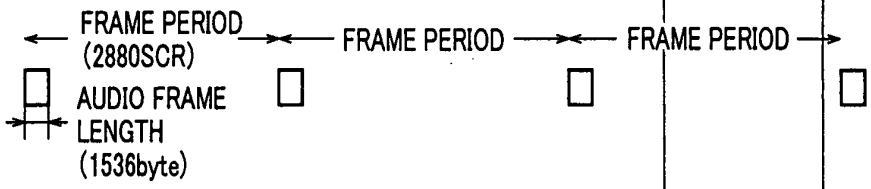


FIG.16C

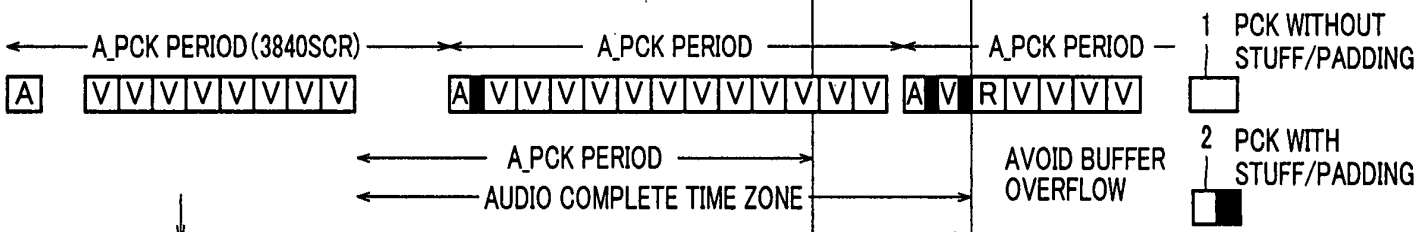

PS
A_PCK PERIOD (3840SCR)
A_PCK PERIOD
A_PCK PERIOD
A V V V V V V V V
A V V V V V V V V V V V V
A V R V V V V
1 PCK WITHOUT STUFF/PADDING
A_PCK PERIOD
AUDIO COMPLETE TIME ZONE
AVOID BUFFER OVERFLOW
2 PCK WITH STUFF/PADDING

FIG.16D

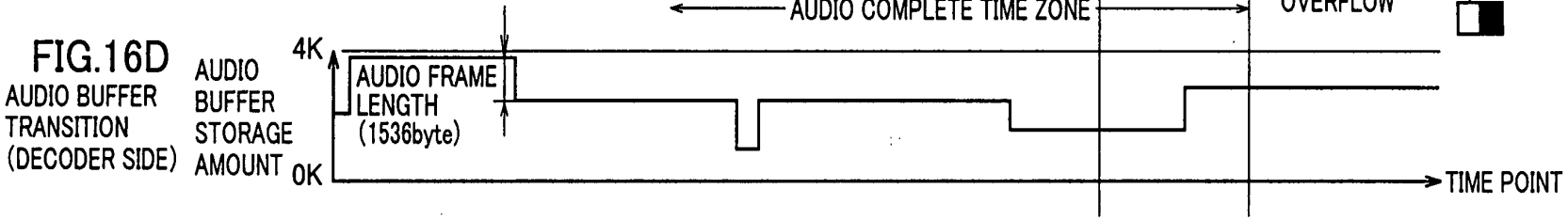


FIG.17

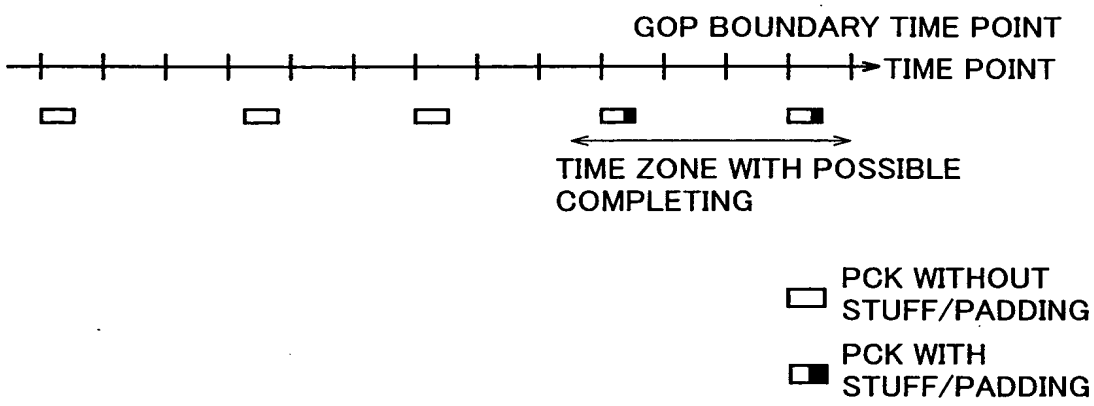

GOP BOUNDARY TIME POINT
TIME POINT
TIME ZONE WITH POSSIBLE COMPLETING
PCK WITHOUT STUFF/PADDING
PCK WITH STUFF/PADDING

FIG.18

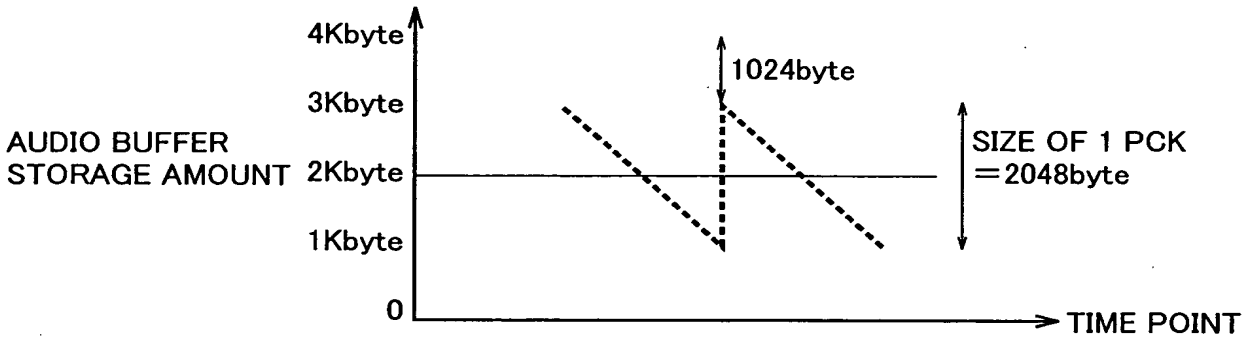

4Kbyte
3Kbyte
2Kbyte
1Kbyte
0
AUDIO BUFFER
STORAGE AMOUNT
1024byte
SIZE OF 1 PCK
=2048byte
TIME POINT

FIG.19

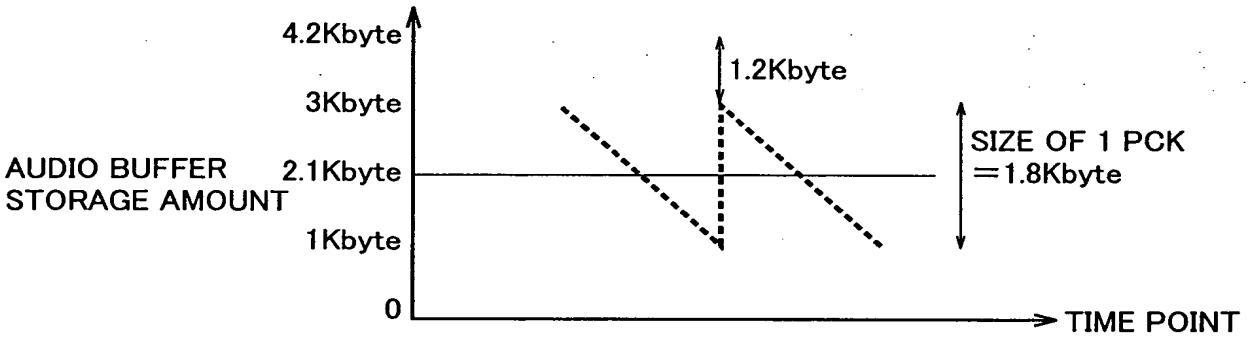

4.2Kbyte
3Kbyte
2.1Kbyte
1Kbyte
0
AUDIO BUFFER
STORAGE AMOUNT
1.2Kbyte
SIZE OF 1 PCK
=1.8Kbyte
TIME POINT

FIG.20

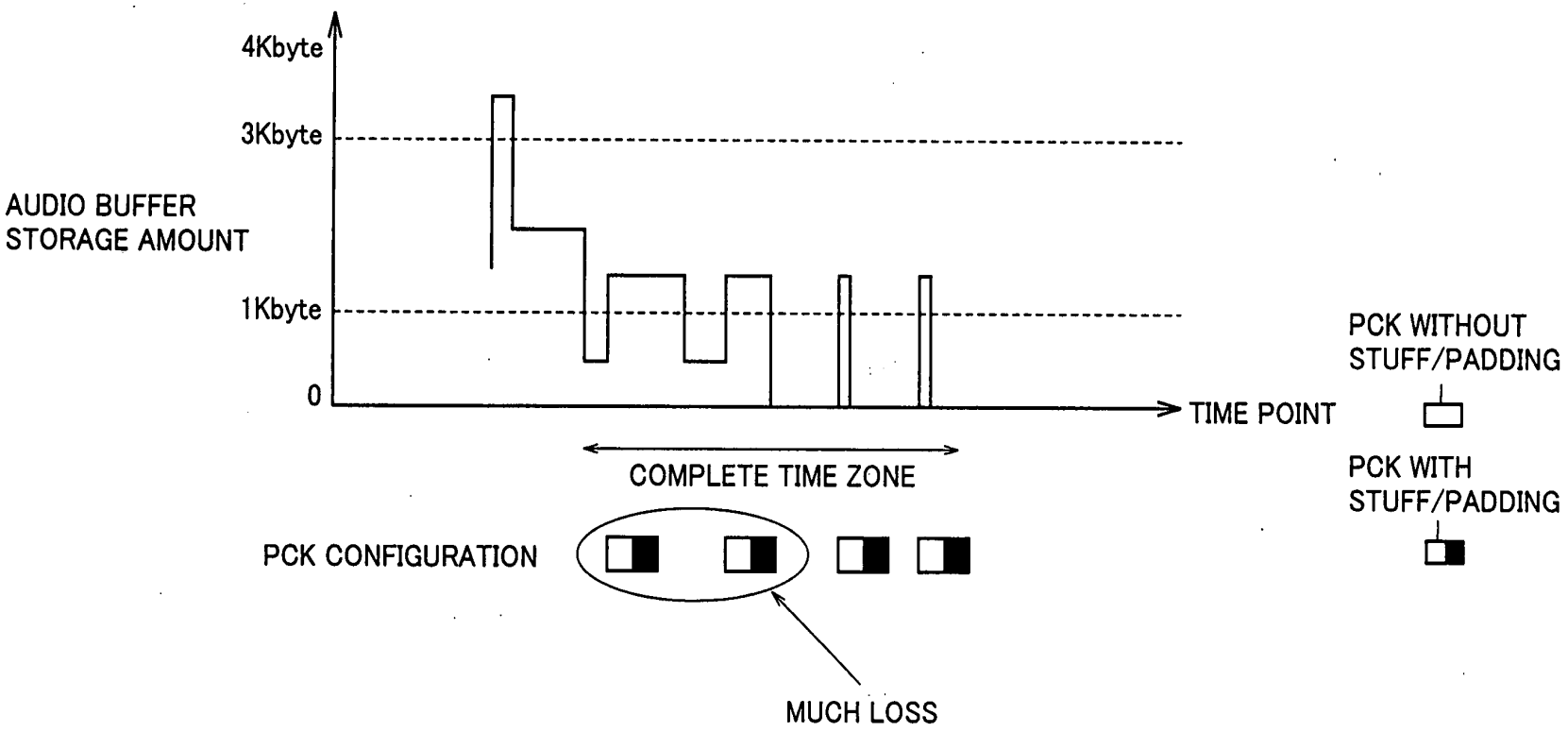

4Kbyte
3Kbyte
AUDIO BUFFER
STORAGE AMOUNT
1Kbyte
0
TIME POINT
COMPLETE TIME ZONE
PCK CONFIGURATION
MUCH LOSS
PCK WITHOUT
STUFF/PADDING
PCK WITH
STUFF/PADDING

FIG.21

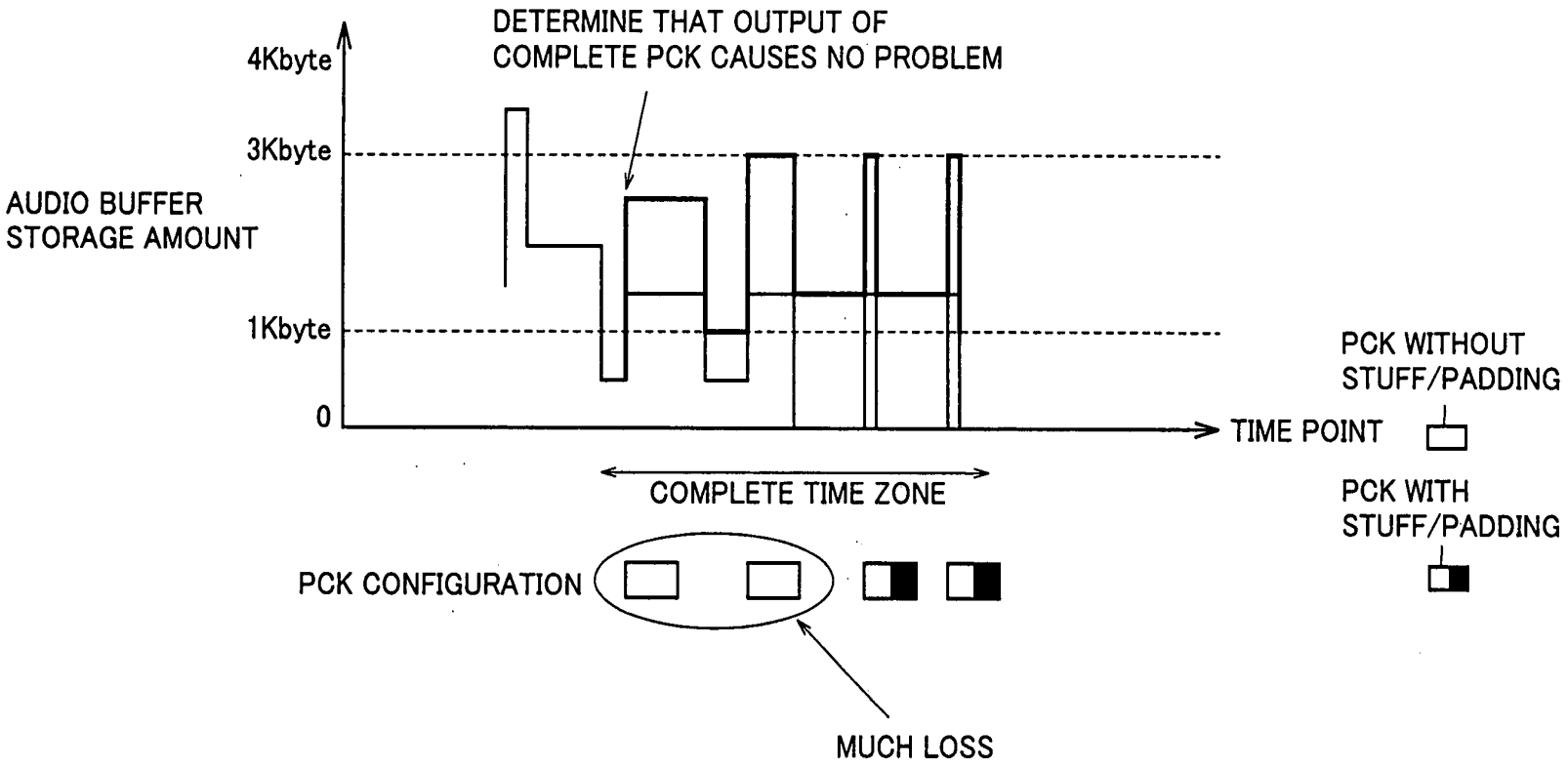
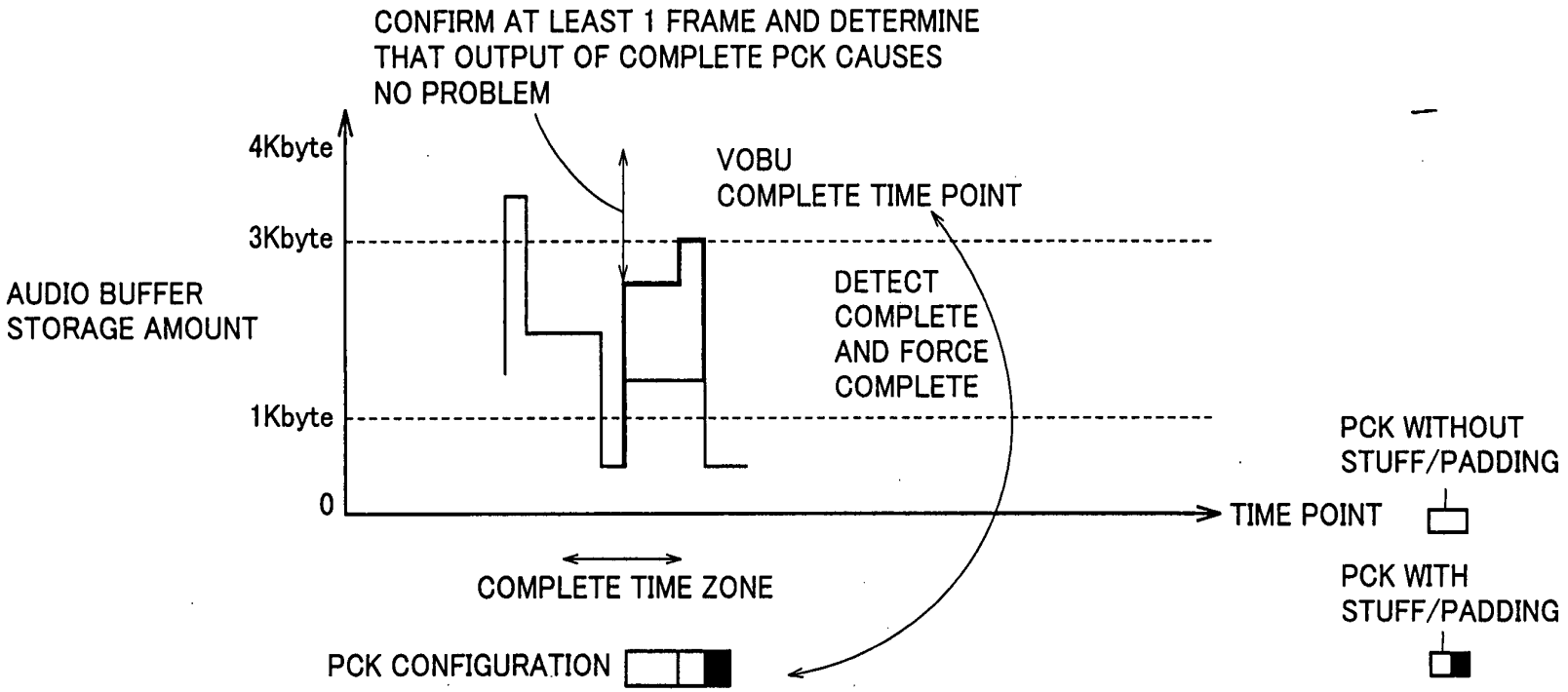

DETERMINE THAT OUTPUT OF
COMPLETE PCK CAUSES NO PROBLEM
4Kbyte
3Kbyte
1Kbyte
0
AUDIO BUFFER
STORAGE AMOUNT
TIME POINT
COMPLETE TIME ZONE
PCK WITHOUT
STUFF/PADDING
PCK WITH
STUFF/PADDING
PCK CONFIGURATION
MUCH LOSS

FIG.22


CONFIRM AT LEAST 1 FRAME AND DETERMINE THAT OUTPUT OF COMPLETE PCK CAUSES NO PROBLEM
4Kbyte
3Kbyte
1Kbyte
0
AUDIO BUFFER STORAGE AMOUNT
VOBU COMPLETE TIME POINT
DETECT COMPLETE AND FORCE COMPLETE
TIME POINT
COMPLETE TIME ZONE
PCK CONFIGURATION
PCK WITHOUT STUFF/PADDING
PCK WITH STUFF/PADDING